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# THE JOURNAL OF PHILOSOPHY

## PSYCHOLOGY AND SCIENTIFIC METHODS

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### CONSTRUCTIVE INTELLIGENCE<sup>1</sup>

**I**F a reader of the volume of essays sent forth by Professor Dewey and some of his fellow "instrumentalists" pauses with curiosity at the title, he may hit, among various explanations, upon this one. When the collaboration was first undertaken and an appropriate label desired, Bergson's *Creative Evolution* was still at the focus of attention. Now, what instrumentalism most insists upon is the constructive and creative function of intelligence. The natural field of thought is the field of natural intelligence. To relegate responsibility for reconstruction to a world process, call it "evolution" or anything else, is not so unlike turning one's affairs over to the Absolute. In either case, when things go into the hands of a receiver there is a bankruptcy, but the bankruptcy is quite gratuitous and metaphysical, so much so that for a very long time it has been a favorite enterprise of metaphysics to imagine some sort of receiver so that natural intelligence might be discredited. But since 1900 the philosophical current has been setting strongly away from its old theological channel.<sup>2</sup> It does not seem likely that the metaphysics of supernaturalism will be stated again so impressively as in *The World and the Individual*, and it is hard to believe that naturalism and empiricism can in the future be viewed with so much dialectical suspicion as greeted Dewey's *Studies in Logical Theory*. For with the beginning of the century, something happened in American philosophy; something came to an end, not all at once, of course, and something began, not, of course, without having been anticipated. It may well be that the importance of *Creative Intelligence* lies not alone in what its authors have to say, but also in its indication of the philosophical position toward which we have been moving. For if the tendency has been not merely from one absolutism to another,

<sup>1</sup> *Creative Intelligence*. John Dewey, A. W. Moore, H. C. Brown, H. G. Mead, B. H. Bode, H. W. Stuart, James H. Tufts, H. M. Kallen. New York, Henry Holt & Co., 1917. Pp. iv + 467.

<sup>2</sup> See the admirable paper by Professor Cohen on "The Conception of Philosophy in Recent Discussion," read at the New Haven meeting of the Philosophical Association in 1909, and printed in this Journal, Vol. VII, p. 401.

but away from all absolutism, it seems not unlikely that instrumentalism, whether the name shall survive or not, is to be an aspect of really empirical naturalism.

It would be interesting to illustrate the progress in philosophy since 1900 by quotations that show the old spirit with contrasting quotations, showing a new loyalty, new, at least, in philosophy; the longing for the eternal peace of a solved equation as contrasted with an interest in what used to be dismissed as "appearance." This latter realm can, we used to be assured, provide us with no absolute certainties, it remains forever "The World of Doubt." In the words of our great idealist: "For us, we turn, not with despair, but with hope, elsewhere. We go to seek the Eternal, not in experience, but in the thought that thinks experience. Our hope is not less because we have found in the temporal a world of doubt. Our song is simply the 'Good-by, proud world, I'm going home' of the religious minded of all ages."<sup>3</sup> How has it come about, Plotinus asks (Ennead V., Bk. I.), that the souls, whose nature is ideal, have forgotten their divine origin, and what must be done to make them remember it? They are like children that have been separated from their father at a tender age, and, having lived a long time apart from him, know neither their father nor themselves. Two things must be done; the soul must be shown the worthlessness of its mundane interests, and it must learn of its origin and of its worth. Thus will it be led back to the source of its being in the First, the One, and the Supreme. And this eloquent passage: "'Hast thou been so long time with me, and yet hast thou not known me?' Such is the eternal answer of the Logos to every doubting question. Seek him not as an outer hypothesis to explain experience. Seek him not anywhere yonder in the clouds. He is no 'thing in itself.' But for all that, experience contains him. He is the reality, the soul of it."<sup>4</sup> And this: "Only the Infinite Self, the problem-solver, the complete thinker, the one who knows what we mean even when we are most confused and ignorant, the one who includes us, who has the world present to himself in unity, before whom all past and future truth, all distant and dark truth is clear in one eternal moment, to whom far and forgot is near, who thinks the whole of nature, and in whom are all things, the Logos, the world-possessor,—only his existence, I say, is perfectly sure."<sup>5</sup> Professor Mead, writing of Harvard in those happy days, observes "There should be a special edition of *The Spirit of Modern Philosophy*, bound in tooled morocco with illuminated borders and initialed paragraphs and illustrated with

<sup>3</sup> Josiah Royce, *The Religious Aspect of Philosophy*, p. 289.

<sup>4</sup> *The Spirit of Modern Philosophy*, p. 350.

<sup>5</sup> *Loc. cit.*, p. 374.

the Pre-Raphaelite art—to symbolize what it meant to young men when Royce first taught in Cambridge.”<sup>6</sup>

The satisfaction this type of metaphysics used to provide is every year harder to understand, but the logical implications are correspondingly clearer. It is really Neo-Platonism risen again in the nineteenth century, somewhat less negative and other worldly in its manner and its apparatus than the doctrine of Plotinus, but no less negative and other worldly in its results, if these are adhered to. And it is historically accurate to connect this doctrine of Royce with the ethics of Fichte. Human difficulties are, as Fichte taught, opportunities for achievement and character. But when we take this transcendentially and theologically, and say that all the tragedy of the world is the Absolute’s moral opportunity, the very stuff of His achievement, the necessity for His triumphant life, how shall one be spurred to attenuate His opportunity and His triumph? And if our empirical rectitude makes not that difference, it is hard to see how it makes any. When the only reason for philosophical thinking is curiosity as to how the absolute mind happens to work, philosophy has become the most irrelevant and academic of disciplines, whereas it ought to be the most important and most illuminating one, providing us not with something that experience refutes, but with a power to which experience testifies, and which experience should enhance. We have, I believe, escaped effectually from the metaphysics of supernaturalism in its explicit forms. But philosophy is still extremely conservative not merely because of theological affinities in the past, but because it is to-day, at least, something taught in institutions of learning.

I wish that Professor Dewey had analyzed this circumstance at greater length. What he says on page 4 is full of suggestion, but he could easily, I think, have shown, in this connection, one of the reasons why instrumentalism has met with so much resistance. A teacher is bound to teach chiefly what has been discovered. He uses, necessarily, a method of exposition and demonstration that can hardly be a method of inquiry. A student almost inevitably gets the impression that thinking is following somebody’s exposition, and the aim of the professor is, of course, to make his exposition such that it must needs be accepted. In this respect, to be sure, philosophy does not differ from other studies pursued at a university, but one of the most fundamental theses of instrumentalism is that thinking is inquiry, a very different thing from the exposition of what inquiry has arrived at. Mathematics has been, for a long time, the philosopher’s ideal of method, but has it been the method of the investigator or of

<sup>6</sup> *International Journal of Ethics*, January, 1917, p. 168.

the teacher? The chances are that our philosophers who know something of mathematics learned it from the expositions of teachers and of books, and that in idealizing mathematics they have idealized not so much a method of thinking as a method of teaching. To quote from Professor Mead's essay on scientific method, "the theory of the growth of mathematics is a disputed territory, but whether mathematical discovery and invention take place by steps which can be identified with those which mark the advance of the experimental sciences or not, the individual processes in which the discoveries and inventions have arisen are almost uniformly lost to view in the demonstration which prevents the results" (pp. 179-180). Professor Dewey observes, "If changing conduct and expanding knowledge ever required a willingness to surrender not merely old solutions, but old problems it is now" (pp. 4-5). The recovery of philosophy that he urges is, accordingly, rather the recovery of philosophy from antiquated and merely professional problems than from any particular solutions of them. To see that they are antiquated and merely professional is to solve them in the one legitimate way.

Professor Dewey criticizes current philosophizing by contrasting the traditional notion of experience with a more observing and empirical account. The contrast is that between the orthodox empiricism of Hume and the radical empiricism of James, and the point at issue is "the place of thought, or intelligence, in experience. Does reason have a distinctive office? Is there a characteristic order of relations contributed by it" (p. 20)? The answer to the first question is, "Yes, the office of control," and to the second, "Yes, logical relations." Intelligence has to do with interests and alternatives and it is in contexts of such normal issues that one thing "means" another thing. "Anticipation is, therefore, more primary than recollection. . . . Success and failure are the primary categories of life" (p. 13). "Our life has no background of sanctified categories upon which we may fall back; we rely upon precedent as authority only to our own undoing" (p. 68). Such subservience to tradition "is the essence of a priorism."

This essay on "The Need for a Recovery of Philosophy" is, I think, one of the very best its writer has given us. I have, of course, done no more than try to indicate its spirit and point of view.

If thinking is a natural power without which a creature drifts pathetically as soon as its environment becomes so complicated and irregular that instinct and habit do not suffice, thinking is, of course, continuous with every case of doing that can be said to be mentally controlled, and the isolation of thinking from the activities that provide its occasions will lead naturally enough to distorted accounts of

it. Instinct and habit are of no avail in the presence of really new situations. The application of fixed rules to particular instances is a good definition of consistent conduct, but, unless the rule is applied in the spirit of experiment, there is no such thing as inquiry. As all readers of Dewey know, it is, then, novelty to which the intelligent response is inquiry or thinking, provided we wish to distinguish thinking from other forms of activity. Traditional logic is, however, the analysis of the technique of applying fixed rules to particular instances, *i. e.*, it is an analysis rather of practical conduct than of thinking. And in the tradition of idealism, logic has been so compromised that Professor A. W. Moore (who follows Professor Dewey in the volume) calls it "a hybrid science, half logic, half metaphysics and epistemology" (p. 71). An important chapter in a recovery of philosophy is, accordingly, bound to be the "Reform of Logic," and to that Professor Moore devotes his attention. His demand is the typical demand of instrumentalism in this matter, *viz.*, that logic be transformed into an effective organon of the mind by ceasing to misrepresent what the mind and its organon have to do. Logic, as expounded in recent years, has been characterized by epistemological transcendentalism of an idealistic or a realistic sort. Both types, the logic of the idealists and the logic of the realists, make knowing discontinuous with the rest of life, and isolate the mind in a sort of vacuum. The reformation required will begin with the restoration of the mind to its field of natural responsibilities, and with ending the obligation of theories about it to obscurantist tradition. The alternative is experiment (inquiry) or dogmatism. "That universals should or could be conceived as experimental, as hypotheses, was, when translated into later theology, the sin against the Holy Ghost" (p. 74). Bosanquet calls procedure by hypothesis by induction "a transient and external characteristic of inference" (p. 94). But beside the spirit of experiment, there must be regained the courage to admit that some genuine facts are empirically mental facts, and that the mind is a perfectly normal thing. It may be, as is affirmed in the *New Realism* (quoted on p. 102), that "Logic and mathematics are sciences which can be pursued quite independently of the study of knowing." The instrumentalist declines, however, to use the word logic in a sense (to be sure, the traditional sense) that would permit this to be true. Such a logic can not be, he holds, an organon of intelligence.

Professor Brown's contribution on "Intelligence and Mathematics" is most welcome. It is to be hoped that he will continue and enlarge the study here so interestingly begun. Professor Dewey remarks (p. 24, note) that "mathematical science in its formal aspects, or as a branch of formal logic, has been the empirical stronghold of

rationalism." Professor Brown shows the natural and instrumental basis of deductive functions. He sketches rapidly the history of mathematics to show that its roots are and always have been "in the workaday world." Counting is the most primitive mathematical activity and is certainly a practical one. It led to the generalizations contained in number symbols and in operations upon them. "The situation seems to be that we are now face to face with new generalizations. Just as number symbols arose to denote operations gone through in counting things when attention is diverted from the particular characteristics of the things counted, and remained a symbol for those operations with things, so now we are becoming self-conscious of the character of the operations we have been performing and are developing new symbols to express possible operations with operations" (p. 143). Mathematics is a technique of operations in which abstraction from the characteristics of individual things has been carried very far. The philosophy of it has suffered like the philosophy of other affairs from the operation of metaphysical motives and assumptions that are no longer justified. Absolutistic mathematics have too long provided a nest for the survival of the faculty tradition in psychology. So if we are asked "why it is that mathematics, 'a purely conceptual science,' can tell us anything about the character of a world which is, apparently, at least, free from the idiosyncrasies of individual mind" (p. 121), the answer is that "the most fantastic forms of mathematics, which themselves seem to bear no relation to actual phenomena" nevertheless derive their relations "from dealing with an actual world" and these relations "may contribute to the solutions of problems in other forms of calculus, or even to the creations of new forms of mathematics" (p. 146). The history of mathematics carries us from the simplest of empirical beginnings to the highest abstractions of science. But mathematical science differs from other science only in disregarding more completely the distinguishing features of individuals and concentrating attention on what is most nearly universal. There is an apt quotation (p. 122) from Boas:<sup>7</sup> "It must be borne in mind that counting does not become necessary until objects are considered in such generalized form that their individualities are entirely lost sight of. For this reason it is possible that even a person who owns a herd of domesticated animals may know them by name and by their characteristics without ever desiring to count them."

Professor Mead's paper, "Scientific Method and Individual Thinker," is an extremely solid and rather difficult article. Scientific method, when it deserves the name, is a method of discovery,

<sup>7</sup> *The Mind of Primitive Man*, pp. 152-153.

not of exposition; it is a way rather of changing a point of view than of conserving it. Such progress begins with novel observations made by an individual, observations that from the established point of view must have been deemed impossible. Scientific method "is a method not of knowing the unchangeable, but of determining the form of the world within which we live as it changes from moment to moment" (p. 225). When the empirical conditions under which we have to act change in important respects, science has to reformulate the world where those conditions prevail "so that we may logically construct our next plan of action. The plan of action should be made self-consistent and universal in its form . . . because our plan of action needs to be intelligent and generally applicable" (p. 226). "In Aristotle's methodology there is no procedure by which the mind can deliberately question the experience of the community and by a controlled method reconstruct its received world" (pp. 191-192). "In the ancient world the atypical individual, the revolutionist, the non-conformist was a self-seeking adventurer or an anarchist, not an innovator or reformer, and subjectivism in ancient philosophy remained a skeptical attitude which could destroy, but not build up" (p. 189). Yet progress, in so far as it is an achievement and not an accident, depends upon creative originality, and originality comes with the dissenting individual, whose heresy is, however, the expression of a positive and constructive attitude; and "this relation between the experience of the individual and the world which may arise through the realization of his ideas, is the basis of the most profound distinction between the ancient world and the modern" (p. 193).

And here, let me state the instrumentalists' position in my own way. Things are judged to be what they are treated as being. Things have to be treated somehow; to treat anything in a particular way is to assign to it certain characteristics. If the word "reality," let us say, means anything, it should mean a particular way of treating the things that are judged to be "real." This is, after all, very much like the principle of Peirce, but the above way of phrasing that principle helps to explain a statement like the following: "The individual in his experiences is continually creating a world which becomes real through his discovery [is thereafter treated as real]. In so far as new conduct arises under the traditions made possible by his experience and his hypothesis, the world, which may be made the test of reality, has been modified and enlarged" (p. 225).

Professor Bode in "Consciousness and Psychology" describes consciousness from the behavioristic and teleological point of view. The "solid achievements" of psychology "lie in the domain, not of consciousness, but of instinctive, habitual, and intelligent adaptation" (p. 231). Consciousness is an aspect of behavior; conscious



behavior is selective and teleological. "Future results or consequences must be converted into present stimuli; and the accomplishment of this conversion is the miracle of consciousness. To be conscious is to have a future possible result of present behavior embodied as a present existence functioning as a stimulus to further behavior" (p. 240). "This control by a future that is made present is what constitutes consciousness" (p. 242).

Introspective psychology, however, takes as its point of departure, "the distinction between focal and marginal experience" (p. 258), but it treats this real distinction, not as a distinction of function (which it is), but as a distinction of "static existence" (p. 268). Bode gives his own account of the focal marginal contrast on page 267, and I regret not to be able to quote it all. "The marginal character of an experience is simply a reference to its function as a clue or cue to some further experience, *i. e.*, a reference to its character as a changing stimulus. . . . The transfer of the future into the present gives us a fact, here and now, and in this respect the experience is entirely focal in character, and as such it is subject-matter for the various sciences. . . . With respect to the further experience, however, which it conditions or for which it prepares the way, the present experience is entirely marginal, *i. e.*, in its character as a changing stimulus it is subject-matter for psychology. The distinction of focus and margin, then, is based ultimately upon the function of experience in the control of behavior." And on page 275 "Focus and margin, in short, have to do with movement, with transition, and not with a static field."

Conservative psychologists will, no doubt, protest that consciousness is not at all the sort of thing the behaviorist talks about. Some of their objections are, however, more than likely to be dialectical ones, controlled by the word and its associations. And might it not be shown that a large part of the technique of "experimental" psychology has been determined by the traditional introspective point of view, so that by adapting their methods to their conception, they have controlled their conception by their method: are they not, in fact, judging a conception of consciousness to be valid by treating it as such in their technical procedure? When experimental reactions in a laboratory are disconnected from all issues and consequences with which intelligence could be concerned, the responses are prevented from showing just what is characteristic and important about "conscious" responses. The biological individual can be isolated in a laboratory for observation, but the normal "conscious," *i. e.*, the *civilized* individual, the social and moral person can not be observed in this way. It is a pity that this volume of essays does not include a study developing the behavioristic concept of consciousness in the

field of social psychology. That is, perhaps, the inquiry which might give a tentative completeness to the instrumentalist position, and it should throw light on some of the problems with which Mead is concerned, and which must be attacked, he believes, "from the social nature of so-called consciousness" (p. 220).

Professor Stuart's study entitled "The Phases of Economic Interest" emphasizes the importance of novelty in human affairs from another angle. Science naturally tends to standardize its subject-matter, to treat it as recurring phenomena, to stamp it with routine. But when the subject-matter is provided with a capacity for escaping routine, when the complex variety of his existence obliges him to be inventive and resourceful, this "scientific" point of view misrepresents its material. Men and women do not behave with the fixed routine of merely physical facts. And the practise of inventive resourcefulness modifies the one that practices it. "Can the conception thus suggested of personal growth through exercise of creative or constructive intelligence be in any measure verified by a general survey of the economic side of life? Has it any important bearings upon any parts of economic theory" (p. 283)? These are the questions that Professor Stuart considers. According to the current dialectic, commodities are produced because demanded. How can a *new* commodity, of which there is neither experience nor knowledge, be demanded, so how can economic theory account for its being produced? *Logically*, it can not, but that should not blind the economist to the fact that one gift of man is curiosity, and a real pleasure in novelty, and this interest is found in "economic" experience as well as in other experience. But an important school of economists, Böhm-Bawerk and the Austrian school, has been misled on this point; economic problems do not occur in human experience with the isolation and definition that theory has conferred upon them. "Real economic progress is ethical in aim and outcome" (p. 352). "The economic interest as a function of intelligence finds its proper expression in a valuation set upon one thing in terms of another" (p. 351). Economics "reminds us that morality and culture, if they are genuine, must know not only what they intend, but what they cost" (p. 352). Thus ethics and economics can not be divorced.

If economics has suffered from dialectical simplification, ethics has suffered no less. "Those writers who have based their ethics upon concepts have frequently expressed the conviction that the security of morality depends upon the question whether good and right are absolute and eternal essences independent of human opinion and volition. A different source of standards which to some offers more promise for the future is the fact of the moral life as a constant process of forming and reshaping ideals and of bringing these to bear

upon conditions of existence" (p. 357). Thus Professor Tufts introduces his point of view in "The Moral Life and the Construction of Values and Standards." If any line of study has something to do, that study should be ethics, and the state of the world to-day shows that ethics can not be divorced from economics and politics. All the factors of social contradictions must be taken into account, and new definitions must be looked for (p. 407). "Can any one by pure reason discover a single forward step in the treatment of the social situation or a single new value in the moral ideal" (p. 408)? Tufts analyzes his point of view (pp. 372-373) as covered by the five following claims: (1) "The good while objective is yet objective as a value and not as an essence or physical fact," by which, if I understand, is meant that the good is a state of things to be brought about, but is not anything already in existence, or explicable, much less attainable in merely dialectical terms; and it is to be brought about as a favorable variation of conditions that exist, but are condemned as unsatisfactory. (2) That a social factor in value throws light upon the relation between moral and other values, by which is meant that things that have value to the individual as such and acquire thereby an economic status, take on moral significance when they influence the relations between two individuals or more. Anything, an object of competition, for instance, that affects a social variation or a variation in cooperative relations, is a factor in a moral situation. (3) "That right is not merely a means to the good, but has an independent place in the moral consciousness." Moore, for instance, is wrong in saying that "right does and can mean nothing but 'cause of a good result,' and is thus identical with the useful"; the quality of the present is involved as well as future references, and this is a function of social education; no amount of subsequent benefit accruing from the condemnation of Socrates could make that action altogether "right." (4) "That right while signifying order does not necessarily involve a timeless eternal order, since it refers to an order of personal relations," relations, *i. e.*, of reciprocal good faith and loyal cooperation. (5) "That the conception of right instead of being a matter for pure reason or even the 'cognitive faculty' shows an intimate blending of the emotional and intellectual and that this appears particularly in the conception of the reasonable"; proposition 5 is explained by a quotation from Dewey—"The only truly general, the reasonable as distinct from the merely shrewd or clever thought, is the generous thought."

Professor Kallen invites us to consider that curiosity of pious metaphysics, the "problem of evil." When evil is so frequent and so sinister what can induce a candid philosopher to deny its reality? Surely it takes a fanatical optimist to believe that all is as it should

be in spite of appearances—that “reality,” in spite of all the evidence we have, is pure and perfect. The compensatory function of illusion is something we all know, but why should the imagination, familiar with life and death, with contradiction, mutability, and constraint, have found such satisfaction in demonstrating our own freedom and immortality, and the unity, spirituality, and eternity of this baffling world? Philosophers have labored at “proofs,” but have turned their backs on evidence. The “proofs” make plausible what is desired, while evidence could but testify to what happens to be. In the “history of philosophy” the “task of philosophy” as often and unctuously explained is to substitute value, the desired, for existence, the given, and to make the substitution articulate and plausible. This is the antithesis in the title of Kallen’s paper, “Value and Existence.”

But the cultivation of illusion, although the way of much philosophy, is not the way of intelligence. Art is wiser. “Art does not substitute values for existence by changing their rôles, and calling one appearance and the other reality: art converts values into existences; it realizes values, injecting them into nature as far as may be” (p. 437). Art awakens, enlarges, informs, perhaps, but has no desire to deceive. “Philosophy realizes fundamental values transcendently beyond experience; art realizes them within experience” (p. 437). But the values postulated by philosophy have to be conserved with the aid of much social and ceremonial furniture, forms that simple folk can use. This is what religion does. But religion faces the world more candidly than philosophy; less obsessed with “unity” it finds part of its capital in the fact “that the actual world, whatever its history, is now not adapted to human nature” (p. 441). The bearing of these considerations is upon the conception that a philosopher of to-day should have of his own undertaking, a philosopher, that is, who has freed himself from the incubus of his academic tradition. Philosophy should be a power as art is, a power to fabricate comprehensive policies where wisdom, purpose, and skill can cooperate.

## II

The above is, indeed, a ponderous and literal-minded summary of what the reader finds in *Creative Intelligence*. Far more profitable, however, than a discussion of these papers in detail is a consideration of the philosophical movement here represented, separating, so far as we may, its constructive from its merely polemical aspects.

This separation is not an easy one to make. Instrumentalism is part of the whole shifting to empiricism, part of the steady, but more

or less perplexed renunciation of idealism. If we take as the first explicit document of instrumentalism Dewey's *Studies in Logical Theory*, we see that it began when idealism was in all but complete possession of the field. In this determination to be free from supernaturalism, instrumentalism is at one with neo-realism. The neo-realists are, I take it, even more involved in the controversy with idealists. If we take together the later work of James, of Santayana, of the Chicago pragmatists, of the neo-realists, the more recent developments in psychology and in ethics, the attempt of philosophers and lawyers to get together, we see a movement all in one direction, and whatever that movement is toward, it is perfectly clear what it is away from.

In the above enumeration, I spoke of the later work of James. James was, however, always a prophet of instrumentalism. His *Psychology* contains various explicit statements of this point of view, statements that probably used to be something of a scandal to his readers. His conception of mind has been excellently phrased by Perry in his sketch of James's philosophy.<sup>8</sup> "His object is man the organism, saving himself and asserting his interests within the natural environment. . . . The mind is not a mirror which passively reflects what it chances to come upon. It initiates and tries. . . . The mind like an antenna feels the way for the organism. It gropes about, advances and recoils, making many random efforts and many failures; but it is always urged into taking the initiative by the pressure of interest, and doomed to success or failure in some hour of trial when it meets and engages the environment."

Now if this is a good metaphor, if it does indicate the kind of thing the mind has to do, what are the consequences for philosophy likely to be? How is our theory of the intellect and its methods and resources likely to be modified? The pragmatism of James was, to be sure, quite a different thing from the instrumentalism of Dewey and his followers. James was too much interested in the uniqueness of personality; he was too much the artist, too much the sympathetic friend of eccentric individuals to take readily to the impersonal point of view of science. His esteem of individuality made him impatient of the social emphasis, and of the historical type of explanation so characteristic of the instrumentalist point of view, and to which his concept of "radical empiricism" naturally extends itself. But although James was so generous and so human, he was never the servant of tradition; he came to philosophy and psychology from medicine, and he liked to think of the psychologist as the physician of the soul, rather than as its metaphysician. I think we are not likely to exaggerate if we recognize and welcome in the

<sup>8</sup> *Present Philosophical Tendencies*, p. 350.

progress of instrumentalism and empiricism much of the spirit and influence of James.

As I have remarked above, instrumentalism is part of the general shift of emphasis and interest, and this is not a purely American matter. It has been going on all over the world wherever philosophy is an organon of mind alive in the world of to-day. It is, however, the good fortune of America to be freer in this matter than are the countries with more impressive philosophical traditions of their own, and it would be a pity if our thinkers here should not respond to their advantage, all the more so as our obligations to European thinkers are so genuine; one need cite only the names of Mach and Poincaré and, I am sure, Bergson. For there is one aspect of the latter's philosophy which instrumentalists must cordially appreciate, his insistence on the reality and importance of time. Dewey has to explain continually that the temporal aspect of experience is the fundamental thing about it. Any philosophy that makes much of empirical reconstruction, of utilizing the past in the interest of the future, is, the facts being what they are, under considerable obligations to the French philosopher. As long as time was "phenomenal" and negligible, as long as philosophers sought the "eternal" nature of "reality" and took no interest in change and novelty, they had to misrepresent the capacity that reveals itself most clearly in ingenuity, the power of constructive and inventive thinking. The recovery of time was a prime necessity, and although this should not have been difficult with a little common sense, Bergson is one of those who has helped us out of the old static world. Timelessness had to be dethroned and relegated to its field of dialectic before philosophy could be normally empirical.

And this brings me to a question, which does not, however, imply disagreement. The ideal of instrumentalism, and of the modern ethics that hails not Kant but Socrates as its prophet, is civilized intelligence. Yet if the past contains no lessons for the future, if the fruits of experience can not be depended upon, if indeed there are no fruits of experience, how can intelligence be possible, how can any instrumental function operate? If experience does not repeat itself, how can there be a logic of any sort, experimental or other? The only writer in *Creative Intelligence* who refers to this circumstance is Stuart (p. 299), who observes: "If, then, 'logic' is unable to express the nature of our forward looking interest in the unexperienced and unpredictable, perhaps the empirical fact will speak for itself."

The empirical fact does speak for itself, and my query is, of course, a dialectical one, intended not to deny the facts to which the instrumentalists appeal, but to comment upon what seems a

rather one-sided (because polemical) statement of their own position. When we face complete and entire novelty we stand helpless; even experiment can not be "intelligently" controlled. But such radical novelty as this seldom or never occurs, and I do not suppose that any instrumentalist postulates it. What we call new is a variation of the old, not an entire removal of it. The automobile was, of course a "novelty," but it was a new kind of vehicle, a new kind of self-propelled vehicle. If the instrumentalist charges his opponents with abstracting from what makes thought necessary, a neutral critic might say that the instrumentalist is inclined to abstract from what makes thought possible.

After all, the trouble is, I think, largely a matter of exclusive emphasis. Traditional "logic" is the application of rules to particular instances, and if that is all we obtain the result is dogmatism and much futility. The reform of logic that Moore calls for does not consist in abandoning the principles of common sense, but in supplementing "logic" with experiment, in applying the principles of "logic" without dogmatism, and in maintaining an attitude of open-minded inquiry, welcoming the individual's fruitful originality (Mead), and not by repudiating him as a non-conformist, applying both experiment and common sense to problems that are urged upon us by life, and not merely transmitted to us by tradition (Dewey).

Instrumentalism is one chapter in the larger volume of empiricism, and no single chapter can possibly contain all the rest of the book. An instrumentalist naturally may seem to "abstract" from much that he takes for granted. Intelligence depends upon recurrence, and thinking presumes partial novelty. Intelligence begins when recurrences can be noted and controlled, when men have some success in dominating their world and themselves. The most thoughtful Greeks launched philosophy as an organon of intelligence rather than of thinking, because their problem was what Dr. Kallen calls the conservation of values. But the time came when the natural world was viewed as something neither to understand nor to use nor to enjoy. Philosophy postulated perfection beyond the moon, and the problem of evil, born of the pessimism of collective failure, has dominated metaphysics even to this generation. But in thus becoming a device of the "twice born," philosophy ceased to be an organon of the mind. The instrumentalists are the "once born" who would make philosophy again an organon not merely of conservation, but of directed growth.

It is this return to the idea of organon which gives us, I think, the best cue to instrumentalism's most characteristic attitudes. Instrumentalism is most reasonably to be understood by giving it its place in the history of the organon, a history that is not quite the

same thing as the history of logic. This history seems to have begun in the political rivalries of Greece. A technique of debate of effective exposition of a programme, and of demolition of a rival programme must have been well developed long before Aristotle gave it its most economical statement. Logic has remained from that day to this the principles of the exposition of the consequences of what can be precisely identified. The question is, as I have tried to point out, whether logic can ever be anything else, and whether the use of such principles is not the essence of intelligence. But be that as it may, philosophy as an organon will have to be applied to different problems at different times, and that is why the organon for to-day has to be formulated in a setting of social psychology and social ethics. At a time when the social fabric is so frail and when social problems are so serious and menacing, when the very idea of democracy seems to be on trial, a philosophical organon must be primarily an instrument for the study of human values in their empirical and precarious interdependence. The document in which instrumentalism appears as a contribution to the history of the organon is, of course, Dewey's *Essays in Experimental Logic*. Professor Dewey would not, I suppose, claim to have formulated a new organon, but all his writings on logic do constitute a body of prolegomena to a new organon.

Discussion such as that in *Creative Intelligence*, and that which I have permitted myself, falls easily into sweeping statements, and indulges in broad and somewhat abstract terms. The word "philosophy" is, however, like the words "science" or "literature," "art" or "industry," a label under which we can group a great many theories, problems, and, perhaps, discoveries. We do not see biologists and chemists discuss particular problems in terms of the nature of "science." Should not the good philosopher be like the good scientist, or the good man of affairs—the man who studies as successfully as he can, one particular problem or another? In fields so rich as philosophy, science, and practical affairs there are many and various things to be done, and what is desirable to get done depends on many and various circumstances. A problem is not any more or less genuine or more or less important because we have labeled it a problem of philosophy or because we have neglected to label it at all. Our human situations present so many faces, the picture of one will not be the picture of another, and should not claim to be. In the welter of experience the problem of controlling and directing it is bound to be a twofold problem because conservation and innovation must both work together. Each will have its special advocates, and each, very likely, its time of special importance. What we have come to call instrumentalism is the voice of those whose philosophy is inspired by a discontent with things as they are and who



believe that it is the special business of the mind to change them. Instrumentalism is the philosophy of constructive radicalism at a time when the world is full of forces and instruments of transmutation. Intelligence has or ought to have a pivotal position in the world, and the enforcement of this position is the constant problem in all the multitude of real and changing problems with which we have to deal. We can not depend upon providence or evolution or the inertia of things. Philosophy will have different tasks at different times, but just now one great task for the *thinker*, for the American thinker, is to "bring to consciousness America's own needs and its own implicit principle of successful action." What can that principle be except the frank responsibility of constructive intelligence?

Instrumentalism, as well as the more comprehensive empirical naturalism, is, to be sure, "a recovery of philosophy," but this recovery has, I venture to believe, been carried farther than we perhaps realize. How quaint and far away, taken with its traditional interpretation, seems the famous sentence of Locke: "Since the mind in all its thoughts and reasonings hath no other immediate object but its own ideas, which it alone does or can contemplate, it is evident that our knowledge is only conversant about them." *Eppure muove.*

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### FRANCIS BACON AND THE MODERN SPIRIT

THE philosophy of Francis Bacon is at once a reaction, a reformation, and a prophecy. As a reaction it is set in contrast to much that we have come to call ancient and medieval. As a reformation and a prophecy, it is the embodiment and prevision of what we now term modern. It is with Bacon as the exponent and prophet of the modern spirit that I am specifically concerned. Whether he was a Machiavellian in character, an opportunist in politics, a dilettante in arts and letters or a "buccinator" in the sciences, are matters beyond my immediate interest. Other considerations, too, as to whether he was original, or whether his treatment of mathematics was defective, or whether his inductive method was adequate, or whether his account of "causes" was the continuation of alchemy, are likewise topics which must be passed over. Whether original or not, there is no other man of the times in whom the many-sided and varied interests of the age are so illustrated and reflected. If we can attach any meaning to the word modern and if we can anywhere point to a transition from medieval to modern, that meaning and that transition are exemplified in the writings of Francis Bacon. As the mouth-piece of his age he is the spokesman of modernity.